

COMPATIBILITY DETERMINATIONS

Introduction: The Fish and Wildlife Service reviewed hunting for compatibility during the opening package for the recreational hunting program on Waccamaw National Wildlife Refuge. Descriptions and anticipated impacts of each use are addressed separately. However, the Uses through National Wildlife Refuge System Mission, and the Approval of Compatibility Determinations section apply to each use.

Uses: Recreational hunting of big game, small game, and migratory birds

Refuge Name: Waccamaw National Wildlife Refuge

County: Georgetown, Horry, and Marion Counties, South Carolina

Establishing and Acquisition Authority: Migratory Bird Conservation Act of 1929 and the Emergency Wetland Resources Act of 1986 (100 Stat.3582-91).

Refuge Purpose(s): The primary purposes for Waccamaw NWR are: (1) protect and manage diverse habitat components within an important coastal ecosystem for the benefit of threatened and endangered species, freshwater and anadromous fish, migratory birds, and forest wildlife, including a wide array of plants and animals associated with bottomland hardwood habitats; and (2) provide compatible wildlife-dependent recreational activities, including hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation for the enjoyment of present and future generations (U.S. Fish and Wildlife Service, Waccamaw NWR FEIS April 1997).

National Wildlife Refuge System Mission: “The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 U.S.C. §668dd-668ee].

Description of Use:

Big Game Hunting

Big game hunting on Waccamaw NWR consists of white-tailed deer, feral hogs, and limited youth turkey hunts. The South Carolina Department of Natural Resources does not classify feral hogs as a big game species, however the Refuge does for the purpose of its hunting program’s rules and regulations. Hunting activities are permitted with a valid Refuge hunt permit and appropriate state licenses. The Refuge hunt program is an excellent wildlife management and public relations tool, which provides quality recreational opportunities for the public while regulating specific animal populations at desired levels. The Refuge hunt plan was developed to ensure that associated public

recreation and wildlife management objectives are met in a responsible and consistent manner.

Hunting, a wildlife-dependent recreation, has been identified in the National Wildlife Refuge System Improvement Act of 1997 as a priority public use provided it is compatible with the purpose for which the Refuge was established.

Hunting can occur on any portion of the Refuge; however, all or parts of the Refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons. All hunting seasons are established annually through coordination with the South Carolina Department of Natural Resources. All regulations and annual changes are published in the Code of Federal Regulations (50 CFR).

Hunters access the Refuge by foot only.

Public hunting opportunities are limited in South Carolina. Hunting opportunities on private land are virtually non-existent unless a person is willing and able to purchase hunting rights through hunting leases.

Cumulative impacts of Use:

Deer and turkey hunting has been occurring on lands adjacent to the Refuge for many years using much more liberal seasons than the Refuge would stipulate. Data from the South Carolina Department of Natural Resources indicate stable populations of both species. Therefore, hunting on Waccamaw NWR with a more restricted season and regulations should not have negative cumulative impacts on deer and turkey populations.

Since hogs are exotic, they are not a priority species in Refuge management considerations. Feral hogs are considered a threat to the biological integrity of the Refuge and reducing their numbers is a priority for Refuge management. Cumulative negative impacts on hog populations are desired; however, because they are prolific breeders, it is likely the Refuge will always have a hog population in the future.

Determination (check one below):

☐ Use is Not Compatible

☒ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Hunting seasons and bag limits are established annually as agreed upon during the annual hunt coordination meeting with state personnel. These seasons fall within the state framework. The Refuge has consistently established more restrictive seasons and bag limits to prevent over-harvest of individual species or disturbance to trust species. All

hunters are required to possess a Refuge hunting permit while participating in Refuge hunts. This permit, which augments the state hunting regulations, explains both the general hunt regulations and the refuge-specific regulations. Law enforcement patrols are frequently conducted throughout the hunting season to ensure compliance with Refuge laws and regulations.

Justification:

Deer

Deer hunts have proven to be not only compatible with Refuge objectives but also beneficial in meeting them. Deer harvest is essential to help maintain the herd at or below habitat carrying capacity. Overpopulated deer leads to starvation, disease outbreak, and die-off, and to major alteration of native habitats by overbrowsing.

Deer herd health checks are conducted on most NWR's by the Southeast Cooperative Wildlife Disease Study at the University of Georgia. In 2005, the health check report for Waccamaw NWR stated that "Although continuation of current herd density may result in declines in herd health or higher rates of disease-induced mortality, the data suggests that some level of covert mortality may be present. These losses will predominantly affect younger animals, 4-12 month of age, mainly during winter and early spring, and will be associated with parasitism by stomach worms (*Haemonchus contortus*) and lungworms (*Dictyocaulus viviparus*). Any significant increase in density likely would result in declines in population health from this density-dependent parasitism/malnutrition syndrome."

Harvest and survey data collected by the South Carolina Department of Natural Resources in 2010 confirm that decades of deer hunting on surrounding private lands (using bait and a longer season) have not had a local cumulative adverse effect on the deer population. The State estimates that 222,649 deer were harvested in South Carolina in 2010. Harvest records by each county indicate that Georgetown County harvested 4,741 deer in 2010. This total harvest also computes to 84.3 acres/deer or 7.6 deer/square mile. For Horry County, 4,613 deer were harvested in 2010 which also computes to 115.6 acres/deer or 5.5 deer/square mile. Harvest rates on Refuge lands have been significantly lower than private lands adjoining the Refuge due to the allowance of baiting, longer seasons and no restrictions of method of take on private lands.

Deer hunting also provides wildlife-dependent recreation to the public in a region where these opportunities are vanishing. The vast majority of private land is leased for hunting, often costing a person \$300-\$2000/year for membership. The Refuge often attracts those hunters who cannot afford to join a hunting club.

Feral Hogs

Feral hogs are an introduced, non-native species that is extremely invasive. They can harbor several infectious diseases, some of which can be fatal to wildlife. By rooting and

wallowing, feral hogs destroy habitat that wildlife depend on. Destruction includes erosion along waterways and wetlands and the loss of native plants. Additionally, feral hogs compete directly for food with deer, bears, turkeys, squirrels and many other birds and mammals. They are predators of small mammals and deer fawns as well as ground-nesting birds such as turkeys. Hunting of feral hogs provides the Refuge with another management tool in reducing this detrimental species, and at the same time, is widely enjoyed by local hunters.

Wild Turkey

Turkey hunting on the Refuge is decided upon annually based on available habitat and when offered, is limited to youths hunts during the spring. The hunting area is confined to a small section of bottomlands on the western side of the Refuge. Turkeys are non-migratory and therefore hunting only impacts the local population. Because Refuge turkey hunting would be restricted to Refuge tracts along the Great Pee Dee River, frequent flooding along with many other environmental circumstances often further impedes hunter success. Based on harvest data from six South Carolina Department of Natural Resources youth turkey hunts, the overall harvest rates were less than 40% unless accompanied by a professional guide (personal communications with SCDNR Biologist). These data indicate that the local turkey population has withstood hunting on surrounding private lands for several years without negative cumulative effects on turkeys. Therefore, the Refuge should not cumulatively adversely impact the population.

NEPA Compliance for Refuge Use Description:

- ☐ Categorical Exclusion without Environmental Action Statement
- ☐ Categorical Exclusion and Environmental Action Statement
- ☒ Environmental Assessment and Finding of No Significant Impact
- ☐ Environmental Impact Statement and Record of Decision

Mandatory 15-Year Re-evaluation Date: 2027

Description of Use:

Small Game Hunting

Small game hunting consists of squirrels, raccoons, & opossum. Hunting activities are permitted with a valid Refuge hunt permit and appropriate state licenses. The Refuge hunt program is an excellent wildlife management and public relations tool, which provides quality recreational opportunities for the public while regulating specific animal populations at desired levels. The Refuge hunt plan was developed to ensure that associated public recreation and wildlife management objectives are met in a responsible and consistent manner.

Hunting, a wildlife-dependent recreation, has been identified in the National Wildlife Refuge System Improvement Act of 1997 as a priority public use provided

it is compatible with the purpose for which the Refuge was established.

Hunting can occur on any portion of the Refuge; however, all or parts of the Refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons. All hunting seasons are established annually through coordination with the South Carolina Department of Natural Resources. All regulations and annual changes are published in the Code of Federal Regulations (50 CFR).

Hunters access the Refuge by foot only.

Public hunting opportunities are limited in South Carolina. Hunting opportunities on private land are virtually non-existent unless a person is willing and able to purchase hunting rights through hunting leases.

Cumulative impacts of Use:

Opossum and raccoon are hunted primarily at night. Raccoon are more sought after than opossum by the public. Hunting helps regulate opossum and raccoon populations; however, unless the popularity of this type of hunting increases, raccoons and opossums numbers will always be higher than desired. When these species become extremely overabundant, diseases such as distemper and rabies reduce the populations. However, waiting for disease outbreak to regulate their numbers can be a human health hazard. Cumulative adverse impacts to raccoon and opossum are unlikely considering they reproduce quickly, are difficult to hunt due to their nocturnal habits, and are not as popular for hunting as other game species.

Determination (check one below):

☐ Use is Not Compatible

☒ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Hunting seasons and bag limits are established annually as agreed upon during the annual hunt coordination meeting with state personnel. These generally fall within the state framework. The Refuge could, and has, established more restrictive seasons and bag limits to prevent over-harvest of individual species or disturbance to trust species. All hunters are required to possess a Refuge hunting permit while participating in Refuge hunts. This permit, which augments the state hunting regulations, explains both the general hunt regulations and the refuge-specific regulations. Law enforcement patrols are frequently conducted throughout the hunting season to ensure compliance with Refuge laws and regulations.

Justification:

Overpopulation of raccoons and opossum causes abnormally high rates of depredation on turkey and songbird nests. Hunting of these two species would help reduce raccoon and opossum numbers. Studies have been conducted within and outside of South Carolina to determine the effects of hunting on the population dynamics of small game. Results from studies have consistently shown that small game, such as squirrels, are not affected by hunting, but rather are limited by food resources. Refuge staff consulted with State biologists in association with this assessment on the cumulative impacts of hunting squirrel, raccoons and opossum. Although overall State harvest data was unavailable for South Carolina for these species, the Refuge hunt program is not expected to have any significant impact even on local populations of these species due to limited Refuge access and frequent flood events. Under the proposed action, the Refuge estimates a maximum additional 50 squirrels would be harvested and 65 raccoons. Gray squirrels are prolific breeders and their populations have never been threatened by hunting in South Carolina even prior to the passing of hunting regulations as we know them today.

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- ☐ Environmental Impact Statement and Record of Decision

Mandatory 15-Year Re-evaluation Date: 2027**Description of Use:***Migratory Bird Hunting*

Migratory bird hunting on Waccamaw NWR consists of ducks, snipe, woodcock, & geese. Hunting activities are permitted with a valid Refuge hunt permit and appropriate state licenses. The Refuge hunt program is an excellent wildlife management and public relations tool, which provides quality recreational opportunities for the public while regulating specific animal populations at desired levels. The Refuge hunt plan was developed to ensure that associated public recreation and wildlife management objectives are met in a responsible and consistent manner.

Hunting, a wildlife-dependent recreation, has been identified in the National Wildlife Refuge System Improvement Act of 1997 as a priority public use provided it is compatible with the purpose for which the Refuge was established.

Hunting can occur on any portion of the Refuge; however, all or parts of the Refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons. All hunting seasons are established annually

through coordination with the South Carolina Department of Natural Resources. All regulations and annual changes are published in the Code of Federal Regulations (50 CFR).

Hunters access the Refuge by foot only.

Public hunting opportunities are limited in South Carolina. Hunting opportunities on private land are virtually non-existent unless a person is willing and able to purchase hunting rights through hunting leases.

Cumulative impacts of Use:

Regulated hunting does not have an adverse impact on populations of migratory birds. Hunting is a priority public use and offers the public an inexpensive wildlife-dependent recreational opportunity. The USFWS, working with partners, annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the USFWS annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which States may select season dates, bag limits, shooting hours, and other options for each of the migratory bird hunting seasons. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

Determination (check one below):

☐ Use is Not Compatible

☒ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Hunting seasons and bag limits are established annually as agreed upon during the annual hunt coordination meeting with state personnel. These generally fall within the state framework. The Refuge could, and has, established more restrictive seasons and bag limits to prevent over-harvest of individual species or disturbance to trust species. All hunters are required to possess a Refuge hunting permit while participating in Refuge hunts. This permit, which augments the state hunting regulations, explains both the general hunt regulations and the Refuge-specific regulations. Law enforcement patrols are frequently conducted throughout the hunting season to ensure compliance with Refuge laws and regulations.

Justification:

Waterfowl

Waterfowl hunts are restricted to two half days per week only on Refuge lands along the Great Pee Dee River and only allowed until noon throughout the state waterfowl season. As a result of this restrictive framework, annual waterfowl harvest estimates is anticipated to be on average, approximately 25 additional wood ducks harvested each year on the Refuge managed hunts. This harvest impact represents a mere 0.001% of South Carolina's four-year average harvest of 80,440 wood ducks (USFWS, 2006). Additionally, the Refuge has created a contiguous 12,323 acre waterfowl sanctuary along the Waccamaw River sections of the refuge. This area is becoming an important habitat resource for wintering a significant proportion of the wintering wood duck population in an area of the Refuge where State or private sanctuaries have not existed before.

Woodcock

Although wintering numbers fluctuate depending on weather and soil moisture, these areas consistently held huntable populations of woodcocks. Furthermore, in a study done by U.S. Geological Patuxent Wildlife Research Center in 2005 (McAuley *et al.* 2005), study results showed no significant differences in woodcock survival between hunted and non-hunted areas.

Snipe

Based on the USFWS Harvest Report for 2011, snipe harvest estimates for South Carolina for 2009 and 2010 were 1,900 and 7,400 respectively. Seasonal harvest in SC per hunter was 1.6 in 2009 and 5.2 in 2010. Total harvest of snipe for the Atlantic Flyway was 43,600 in 2009 and 54,000 in 2010. Although flyway harvest did not vary significantly between 2009 and 2010, seasonal harvest variations for South Carolina did which demonstrates how weather may be a significant factor in hunter success throughout the state. Based on hunters interviewed during refuge hunts, the overall harvest for Waccamaw NWR will be on average approximately 20 birds per year.

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- ☒ Environmental Assessment and Finding of No Significant Impact
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Mandatory 15-Year Re-evaluation Date: 2027

Availability of Resources for Uses:

Operation and maintenance funds to support hunting are taken from the Refuge's annual budget, which is adequate to sustain the program at the current level. Costs to administer the hunt program will be primarily staff salaries. The facilities most utilized by hunters are parking lots and boat launching ramps. Because hunters are permitted to access the Refuge by foot only, no additional maintenance or improvements of existing facilities will be required. It is estimated that the following annual level of involvement by Refuge staff will be required to adequately manage and monitor the additions to the hunt program over the long term:

Position and GS Level	Involvement	FTE	Cost (approx.)
Refuge Manager GS-12	Oversight, Hunt Plan Development/Updates, Coordination Meetings with SCDNR	.10	\$10,000
Assistant Manager GS-11	Monitor, report, dual function law enforcement	.15	\$12,500
Visitor Services Manager GS-9	Monitor, Hunt Plan Development/Updates, Hunt Brochure Development/Updates/Mailings, Maps	.25	\$12,500
Law Enforcement GS-9	Conduct law enforcement and compliance checks	.25	\$12,500
	Total Annual FTE's and Costs	.75	\$47,500

Anticipated Impacts of the Uses:

Short-term impacts:

Anticipated impacts were identified and evaluated based on best professional judgment and published scientific papers. Waccamaw NWR has been open to hunting for almost two decades, with no documented disturbance to Refuge habitats and no noticeable impact on the abundance of species hunted or other associated wildlife. While managed hunting opportunities may result in localized disruption of individual animals' daily routines, no noticeable effect on populations has been documented. Refuge hunting is a well monitored and regulated public use and this activity should not have a negative impact on the overall Refuge populations of the game species approved for hunting.

Long-term impacts:

To date, there is no indication of adverse biological impacts associated with the Refuge's hunting program. However, should it become necessary, the Refuge has the latitude to adjust hunting seasons and bag limits annually, or to close the Refuge entirely if there are safety issues or other concerns that merit closure identified. This latitude, coupled with monitoring of wildlife populations and habitat conditions by the Service and the South

Carolina Department of Natural Resources, would ensure that long-term negative impacts to either wildlife populations and/or habitats on the Refuge are unlikely.

Should hunting pressure increase on the Refuge, alternatives such as quota hunts, a reduction in the number of days of hunting, or restrictions on that part of the Refuge open to hunting could be utilized to limit impacts.

Public Review and Comment:

This compatibility determination is part of the 2012 Recreational Hunting Plan and Environmental Assessment for Waccamaw National Wildlife Refuge and made available for public comment for 18 days between January 3rd through January 20th, 2012. This document is submitted for Fish and Wildlife Service final approval.

Approval of Compatibility Determinations

The signature of approval is for all compatibility determinations considered within the 2012 Recreational Hunting Plan for Waccamaw NWR. If one of the descriptive uses is considered for compatibility outside of the plan, the approval signature becomes part of that determination.

Refuge Manager:

Marshall Craig Sasser (Signature/Date)

**Regional Compatibility
Coordinator:**

(Signature/Date)

Refuge Supervisor:

(Signature/Date)

**Regional Chief, National
Wildlife Refuge System,
Southeast Region**

(Signature/Date)